

HETERODERA LEUCEILYMA, A CYST NEMATODE PARASITE OF GRASS

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Heterodera leuceilyma Di Edwardo & Perry, 1964, is a cyst nematode which was first observed infecting St. Augustine grass in Boynton Beach, Florida in 1960 (2). Since its discovery, this nematode has been referred to as both the grass cyst nematode and the turf cyst nematode. It is an established pest of St. Augustine grass in the southern and central parts of Florida. It also occurs in the Bahamas.

Although H. leuceilyma was first observed as a parasite of St. Augustine grass, some host testing programs have revealed that the following plants are parasitized to a greater or lesser degree by this nematode (3,4,5):

1. Common St. Augustine grass (Stenotaphrum secundatum [Walt.] O. Kuntze)
2. Bitter Blue St. Augustine grass (Stenotaphrum secundatum [Walt.] O. Kuntze 'Bitter Blue')
3. Floratine St. Augustine grass (Stenotaphrum secundatum [Walt.] O. Kuntze 'Flor-  
atine')
4. Tifgreen Bermuda grass (T-328) (Cynodon dactylon [L.] Pers. x C. transvaalensis  
Davy)
5. Japanese lawn grass (Zoysia japonica Steud.)
6. Emerald zoysia (Zoysia japonica Steud. x Z. tenuifolia Willd. ex Trin.)
7. Barnyard grass (Echinochloa crus-galli [L.] Beauvois)
8. Lee soybean (Glycine max [L.] Merrill 'Lee')
9. Corn (Zea mays L.)
10. Rice (Oryza sativa L.)
11. Buffalo grass (Buchloe dactyloides [Nutt.] Engelm.)
12. Broom sedge (Andropogon virginicus L.)

In two separate tests, common centipede grass (Eremochloa ophiuroides) emerged as a non host (3,4).

The symptoms of infection in a lawn of St. Augustine grass appear to be similar to chinch bug injury. Small patches of declining and dying turf increase in size to become much larger and roughly circular areas. Lawns have been observed which were entirely killed by this nematode. In an infested lawn, one often can easily pull the grass away from the soil with a rake. In greenhouse investigations, symptoms appeared four to five months after inoculation of St. Augustine grass with H. leuceilyma. Tops became chlorotic and top growth declined 45-50%. Roots became discolored and necrotic, and their growth was reduced 60-75%. Microscopic examinations of infected root sections revealed the presence of giant cells at feeding sites within the root tissue (2). Additional studies were conducted to observe the stages of nematode development within the roots of St. Augustine grass after penetration by the second stage larvae (1). The second larval molt occurred 7 days after penetration of the root. The third molt occurred 15-20 days after penetration. The fourth and final molt occurred 18-22 days after larval penetration of the root. In these studies, it was observed that the female was full of eggs by the 34th day.

SURVEY AND DETECTION:

1. Look for dead or unthrifty and chlorotic patches in established plantings of St. Augustine grass. If the turf cyst nematode is present, a hand lens can reveal small cysts clinging to roots from which soil has been gently removed. The cysts will be white, yellow or brown and are marginally visible to the unaided eye.
2. Submit approximately one pint of combined soil and roots, along with a detailed description of symptoms, to a nematology laboratory.

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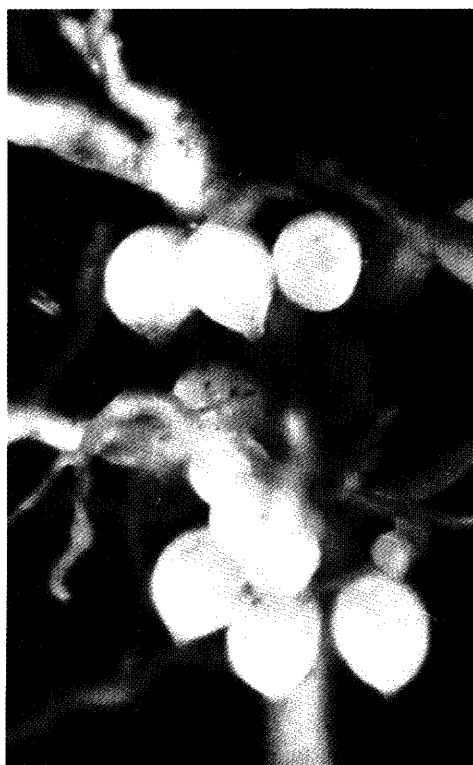


Fig. 1. Cysts of Heterodera leuceilyma on roots of St. Augustine grass. (DPI Negative No. 702880-8)

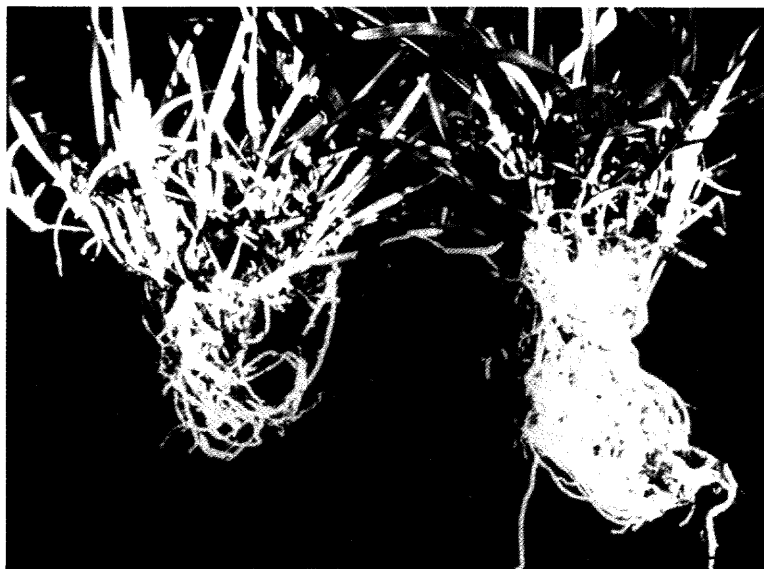


Fig. 2. A) St. Augustine grass with discolored leaves and reduced root system caused by Heterodera leuceilyma. B) St. Augustine grass free of nematode damage. (DPI Neg. #702880-17)

#### LITERATURE CITED:

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